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## Title

1. [\(WO 2007/08422\) ELECTROCHEMICAL CELL HAVING A PARTIALLY OXIDIZED CONDUCTOR](#)

Pub. Date 18.01.2007

Int. Class. H01M 2/02

PCT/

US2007

An electrochemical cell having an aqueous electrolyte and an electrode with partially oxidized graphite mixed with an electrochemical graphite is oxidized on its surface and within a specified range of surface oxidation to improve the aqueous electrolyte's ability to The weight ratio of active material to graphite is maximized to improve performance on high drain tests.

2. [\(WO 2005/040343\) IMPROVED APPARATUS AND METHOD FOR IDENTIFICATION OF BIOMOLECULES, IN PARTICULAR NUCLEIC ACID SEQUENCES, PROTEINS, AND ANTIGENS AND ANTIBODIES](#)

06.05.2005

G01N 15/06

PCT/

US2005

An electrical detection system and method using an array of conductive sense sites within a sensing substrate for electrically detecting hybridization or binding reaction between two chemical substances, particularly between biogenic substances such as nucleic acids and antibodies. The method and apparatus provide a an inexpensive, robust, small, repeatable, and intuitively easy to use or low levels of hybridization with large numbers of closely spaced conductive sense sites within a single substrate.

3. [\(WO 2005/024487\) PROGRAMMABLE OPTICAL COMPONENT FOR SPATIALLY CONTROLLING THE INTENSITY OF BEAM OF RADIATION](#)

17.03.2005

G02B 26/38

PCT/

IB2004

A programmable optical component (10) for spatially controlling the intensity of a beam of radiation (b), which component which is divided in programmable elements (4,6,8), characterized in that each programmable element comprises bendable nano-switchable between a non-bend state (8) and a bend state (6) by means of a driver field. In their bend state the nano-elements a programmable elements may be a switchable diffraction grating or a programmable mask.

4. [\(WO 2005/010891\) FERROELECTRIC AND HIGH DIELECTRIC CONSTANT INTEGRATED CIRCUIT CAPACITORS WITH THREE-DIMENSIONAL ORIENTATION FOR HIGH DENSITY MEMORIES, AND METHOD OF MAKING THE SAME](#)

09.02.2005

G11C 11/22

PCT/

US2005

activities regarding patents and

the PCT

A three-dimensional (3-D) memory capacitor comprises a bottom electrode, a ferroelectric thin film, and a top electrode that co-insulator layer. The capacitance area is greater than the horizontal footprint area of the capacitor. Preferably, the footprint of the nm<sup>2</sup>, and the corresponding capacitance area is typically in a range of from 0.4 nm<sup>2</sup> to 1.0 nm<sup>2</sup>. The ferroelectric thin film preferably exceeding 60 nm. A capacitor laminate including the bottom electrode, ferroelectric thin film, and the top electrode preferably having 200 nm. A low thermal budget  $\text{NO}_2$   $\text{VUV}$  method for depositing a ferroelectric thin film having a thickness in a range of 0...

5. (WO 2004/095607) ELECTRODES COMPRISING MIXED ACTIVE PARTICLES

04.11.2004 H01B 1/08 PCT/

US2004

**Electrode** active materials comprising two or more groups of particles having differing chemical compositions, wherein each group material selected from: (a) materials of the formula  $\text{A}_1\text{M}_1\text{b}_1\text{XY}_4\text{Z}_2$ ; and (b) materials of the formula  $\text{A}_2\text{Z}_2\text{M}_2\text{O}_9$ ; and wherein (i) or K; (ii) M1 and M3 comprise a transition metal; (iv) XY<sub>4</sub> a phosphate or similar moiety; and (v) Z is OH, or halogen. In a preferred embodiment  $\text{A}_3\text{MnO}_4$  having an inner and an outer region, wherein the inner region comprises a cubic spinel manganese oxide, and the outer manganese oxide enriched in Mn<sup>4+</sup> relative to the inner region. In a preferred embodiment, the compositions also comprise a barium...

6. (WO 2004/066307) STACKED MEMORY CELL HAVING DIFFUSION BARRIERS

05.06.2004 H01L

21/32

PCT/

US2004

A bottom **electrode** (238) and portion of an insulator layer (224) adjacent to the bottom **electrode** of a memory capacitor (340) a form sidewall (440) and a meat region (450) in the insulator. A nonconductive oxygen barrier layer (460) is deposited to cover the meat. The nonconductive oxygen barrier layer and a conductive diffusion barrier (444, 238) beneath the capacitor together provide diffusion barrier under the capacitor and a switch (208). A nonconductive hydrogen barrier layer (508), the nonconductive oxyconductive diffusion barrier substantially completely envelop the capacitor, in particular a ferroelectric thin film (490) in the capacitor...

7. (WO 2004/049441) LOW THERMAL BUDGET FABRICATION OF FERROELECTRIC MEMORY USING RTP

10.06.2004 C30B

29/32

PCT/

US2004

A layered superlattice material precursor is applied to a substrate (102). The precursor coating is rapid thermal processed (RTP) 0.1 second at a hold temperature in a range of from 500 °C to 900 °C for a cumulative heating time not exceeding 30 minutes, and 10 minutes. In fabricating a ferroelectric memory cell (100), the coating is heated in oxygen using RTP, then a top **electrode** layer (104) the substrate including the coating is heated using RTP in oxygen or in nonreactive gas after forming the top **electrode** layer. The thickness is in a range of from 25 nm to 120 nm. The process typically has a thermal budget value not exceeding 36...

8. (WO 2003/099715) SYNTHESIS OF METAL COMPOUNDS USEFUL AS CATHODE ACTIVE MATERIALS

04.12.2003 C01B

13/14

PCT/

US2003

Active materials of the invention contain at least one alkali metal and at least one other metal capable of being oxidized to a high oxidation state. Other metals are accordingly selected from the group consisting of transition metals (defined as Groups 4-11 of the periodic table), non-transition materials such as tin, bismuth, and lead. The active materials may be synthesized in single step reactions or in multiple steps. In one of the steps of the synthesis reaction, reducing carbon is used as a starting material. In one aspect, the reducing carbon is pure carbon, preferably in particulate form such as graphites, amorphous carbon, carbon blacks and the like. In another ...

9. (WO 2003/085771) ALKALI-IRON-COBALT PHOSPHATES AND RELATED ELECTRODE ACTIVE MATERIALS

16.10.2003 C01B

25/45

PCT/

US2003

**Electrode** active materials, preferably having an olivine structure, of the formula:  $\text{A}_3\text{M}_2\text{XY}_4$  wherein: (a) A is one or more alkali metals,  $0.1 \leq a \leq 2$ ; (b) M is one or more metals, comprising Co and Fe,  $0 < b \leq 2$ ; and (c) XY<sub>4</sub> is  $\text{XO}_4\text{YX}_4\text{O}_4\text{Y}_2\text{Z}_2$ ,  $\text{XSi}_4$ , or a mixture thereof,  $0 < x \leq 1$ ,  $0 < y \leq 1$ ,  $0 < z \leq 1$ ; (d) X is P, As, Sb, Si, Ge, V, or a mixture thereof; Y is halogen, S, N, or a mixture thereof; Z is O, S, N, or a mixture thereof;  $0.8 \leq a \leq 1.2$ , and  $0.5 \leq b \leq 1$ . In a preferred embodiment, M further comprises one or more non-transition elements. Also provided batteries comprising an **electrode** active material of this invention.

10. WO 2003/049172) LANTHANIDE SERIES LAYERED SUPERLATTICE MATERIALS FOR INTEGRATED CIRCUIT APPLICATIONS 12.06.2003 H01L 21/02 PCT/US2002

An integrated circuit (40) includes a layered superlattice material (57) including one or more of the elements cerium, praseodymium, promethium, samarium, europium, gadolinium, terbium, dysprosium, holmium, erbium, thulium, ytterbium, and lutetium. These elements or superlattice generator elements in the layered superlattice material, in one embodiment, one or more of these elements are a bismuth layered material. They also are preferably used in combination with one or more of the following elements: strontium, calcium, lead, titanium, lanthanum, neodymium, tungsten, niobium, zirconium, bismuth, scandium, yttrium, lanthanum, antimony, chro-

11. WO 2003/023380) ASSAY BUFFER, COMPOSITIONS CONTAINING THE SAME, AND METHODS OF USING THE SAME 20.09.2003 C12Q 1/48 PCT/US2002

Compositions, reagents, kits, systems, system components, and methods for performing assays. More particularly, the invention comprises combinations of reagents to provide improved assay performance.

12. WO 2003/023365) ELECTROCHEMICAL SENSOR USING INTERCALATIVE, REDOX-ACTIVE MOIETIES 20.09.2003 C12N 15/09 PCT/US2002

Compositions and methods for electrochemical detection and localization of genetic point mutations, common DNA lesions and perturbations within oligonucleotide duplexes adsorbed onto electrodes and their use in biosensing technologies are described. An active moiety (such as an intercalator or nucleic acid-binding protein) is adhered and/or crosslinked to immobilized DNA duplexes from an electrode and probed electrochemically in the presence or absence of a non-intercalative, redox-active moiety. Interruption of electron transfer caused by base-stacking perturbations, such as mutations or binding of a protein to its recognition site are refe-

13. WO 2003/017353) PROVIDING PHOTONIC CONTROL OVER WAFER BORNE SEMICONDUCTOR DEVICES 27.02.2003 G01R 31/27 PCT/US2002

Disclosed are methods for providing wafer photonic flow control to a semiconductor wafer (1700) having a substrate (1720), at least one surface layer (1710). Photonic flow control can be achieved through the formation of trenches (1725) and/or insulating structures formed in said wafer (1700), whereby active regions (1780) are defined by trenches (1725) that operate as nonconductive areas systems for wafer level burn-in (WLB) of semiconductor devices are also disclosed. Photonic flow control at the wafer level is implemented by methods and systems.

14. WO 2003/017352) PROVIDING CURRENT CONTROL OVER WAFER BORNE SEMICONDUCTOR DEVICES USING OVERLAYER PATTERNS 27.02.2003 G01R 31/27 PCT/US2002

Disclosed are methods for providing wafer parasitic current control to a semiconductor wafer (1240) having a substrate (1240), a (1240) and at least one surface layer (1240). Current control can be achieved through the formation of patterns (1240) surrounding patterns (1240) including insulating implants and/or sacrificial layers formed between active devices represented by said contacts through active regions (1260) associated with said contacts (1215) and active devices. Methods of and systems for wafer level bi semiconductor devices are also disclosed. Current control at the wafer level is important when using VCL methods and systems.

15. WO 2003/017325) PROVIDING CURRENT CONTROL OVER WAFER BORNE SEMICONDUCTOR DEVICES USING TRENCHES 27.02.2003 G01R 31/27 PCT/US2002

Disclosed are methods for providing wafer parasitic current control to a semiconductor wafer (1500) having a substrate (1520), a (1565) and a surface layer (1510), and electrical contacts (1515) formed on said surface layer (1510). Current control can be achieved through trenches (1525) around electrical contacts, where electrical contacts and associated layers define an electronic device. Insulating placed into trenches (1525) and/or sacrificial layers (1540) can be formed between electronic contacts (1515). Trenches control a

16. (WO 2003/003498) HYDROGEN STORAGE BATTERY: POSITIVE NICKEL ELECTRODE, POSITIVE ELECTRODE ACTIVE MATERIAL AND METHODS FOR MAKING 09.01.2009 H01M 4/26 PCT/US2002

A hydrogen storage battery with improved cycle life and a method for making the same. The battery has a negative **electrode** with active negative material and a negative **electrode** capacity and a positive **electrode** electrochemically coupled with the negative **electrode** having a positive **electrode** capacity and an electrochemically active positive material with a precharge. Also described is **electrode** material for a hydrogen storage battery and a method for making the same. The positive **electrode** material includes a material which is partially **non-oxidized**. The preoxidized material may be used to provide a precharge to the positive **electrode** material.

17. (WO 2002/081473) FERROELECTRIC COMPOSITE MATERIAL, METHOD OF MAKING SAME AND MEMORY UTILIZING SAME 14.11.2002 H01L 21/02 PCT/US2002

A ferroelectric memory (436) includes a plurality of memory cells (73, 82, 100) each containing a ferroelectric thin film (15) included in a composite material having a ferroelectric component (18) and a dielectric component (19), the dielectric component being a diffuser than the ferroelectric component. The dielectric component is preferably a fluxor, i.e., a material having a higher crystallization temperature than the ferroelectric component. The addition of the fluxor permits a ferroelectric thin film to be crystallized at a temperature of between 400 °C and 500 °C.

18. (WO 2002/073680) METHOD OF MAKING LAYERED SUPERLATTICE MATERIAL WITH ULTRA-THIN TOP LAYER 19.09.2002 H01L 21/02 PCT/US2002

In the manufacture of an integrated circuit memory cell, a strontium bismuth tantalate or strontium bismuth tantalum niobate thin film is deposited on a substrate (28, 49) and a carefully controlled UV baking process is performed on the strontium bismuth tantalate layer (50) prior to the deposition of the ultra-thin bismuth tantalate layer (51). A second **electrode** (52) is formed on top of the ultra-thin bismuth tantalate layer (51).

19. (WO 2002/073669) METHOD OF MAKING LAYERED SUPERLATTICE MATERIAL WITH IMPROVED MICROSTRUCTURE 19.09.2002 H01L 21/02 PCT/US2002

In the manufacture of an integrated circuit, a first **electrode** (48) is formed on a substrate (28). In a first embodiment, a strontium bismuth tantalate layer (50) and the second **electrode** (52) are formed on top of the first **electrode** (48). Prior to the final crystallization anneal, the first **electrode** (48), the strontium bismuth tantalate layer (50) and the second **electrode** (52) are patterned. The final crystallization anneal is then performed on the first **electrode** (48), a second layer (132) of strontium bismuth tantalate is deposited on top of the strontium bismuth tantalate layer (50), the second **electrode** (52) on top of the first and second layers (50, 132). In a third embodiment, a carefully con...

20. (WO 2002/065536) RAPID-TEMPERATURE PULSING ANNEAL METHOD AT LOW TEMPERATURE FOR FABRICATING LAYERED SUPERLATTICE MATERIALS AND MAKING ELECTRONIC DEVICES INCLUDING SAME 22.08.2002 C23C 18/12 PCT/US2001

A liquid precursor for forming a layered superlattice material (124, 226, 610) is applied (324) to an integrated circuit substrate. The substrate is then annealed in oxygen using a rapid-temperature pulsing anneal ('RTP') technique with a ramp rate of 30 °C/second at a hold temperature of 500 °C for 30 minutes. The RTP technique includes applying a plurality (330, 340) of rapid-temperature heat pulses in sequence.

21. (WO 2002/004887) METHODS AND APPARATUS FOR PROCESSING MICROELECTRONIC WORKPIECES USING METROLOGY 17.01.2002 H01L 21/30 PCT/US2001

A method and apparatus for processing a microelectronic workpiece using metrology. The apparatus can include one or more processing units (228), a metrology unit (228), and a control unit (270) coupled to the metrology unit and at least one of the processing or transport units. A process recipe or process sequence of the processing unit based on a feed forward or a feed back signal from the metrology unit can include, a seed layer disposition unit, a process layer electrochemical disposition unit, a seed layer enhancement layer (232), a polishing unit, and/or an annealing chamber arranged for sequential processing of a workpiece. The processing units can be connected in series or parallel.

22. [\(WO 2001/076771\) LOW TEMPERATURE OXIDIZING METHOD OF MAKING A LAYERED SUPERLATTICE MATERIAL](#) 18.10.2001 C30B 7/00 PCT/US2001

A thin film of precursor for forming a layered superlattice material (124, 226, 624) is applied (324, 424) to an integrated circuit substrate (122, 224, 508), then a strong oxidizing agent is applied (328, 330, 426, 428) at low temperature in a range of from 100°C to 300°C to the precursor film, forming a metal oxide thin film. The strong oxidizing agent may be liquid or gaseous. An example of a liquid strong oxidizing agent is a mixture of water and hydrogen peroxide. An example of a gaseous strong oxidizing agent is ozone. The metal oxide thin film is crystallized by annealing (336, 338, 432, 434) at a temperature in a range of from 300°C to 700°C, preferably not exceeding 600°C, for a time period in a range of from 30 minutes...

23. [\(WO 2001/067516\) RAPID RAMPING ANNEAL METHOD FOR FABRICATING SUPERLATTICE MATERIALS](#) 13.09.2001 C30B 7/00 PCT/US2001

A liquid precursor for forming a layered superlattice material is applied (324) to an integrated circuit substrate (122, 224, 508). The precursor is annealed in oxygen using a rapid ramping anneal (RRA) technique (328) with a ramping rate of 50°C/second at a hold temperature of 300°C for 30 minutes.

24. [\(WO 2001/066834\) CHEMICAL VAPOR DEPOSITION PROCESS FOR FABRICATING LAYERED SUPERLATTICE MATERIALS](#) 13.09.2001 C23C 16/02 PCT/US2001

A first reactant gas is flowed (310) into a CVD reaction chamber (430) containing a heated integrated circuit substrate. The first reactant gas is a precursor compound or a plurality of first precursor compounds, and the first precursor compound or compounds decompose in the CVD reaction chamber to deposit a coating containing metal atoms on the heated integrated circuit substrate. The coating is treated (312) by RTP. Thereafter, a second reactant gas is flowed (316) into a CVD reaction chamber (430) containing the heated substrate. The second reactant gas contains a second precursor compound or a plurality of second precursor compounds, which decompose in the CVD reaction chamber to deposit more metal atoms on the substrate.

25. [\(WO 2001/024237\) INTEGRATED CIRCUITS WITH BARRIER LAYERS AND METHODS OF FABRICATING SAME](#) 05.04.2001 H01L 21/02 PCT/US2001

A hydrogen diffusion barrier (132, 124, 332, 324, 432, 424, 532, 524, 720, 710, 750, 770, 912) in an integrated circuit (100, 900) is located to inhibit diffusion of hydrogen towards a dielectric thin film (128, 326, 428, 528, 711, 764, 908) of metal oxide material. The diffusion barrier comprises at least one of the following oxides: tantalum pentoxide; tungsten oxide; aluminum oxide; titanium oxide; ferroelectric or high-dielectric, nonferroelectric material. Preferably, the metal oxide comprises ferroelectric layered superlattice material. The diffusion barrier layer may be a single continuous layer (132) completely overlying a common planar electrode and the dielectric...

Final 14 records

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### Search Summary

non NEAR oxidized: 2973 occurrences in 1070 records.

non NEAR electrode\*: 12954 occurrences in 4729 records.

(non NEAR oxidized AND non NEAR electrode\*): 39 records.

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